

Notice of Allowability

Application No.

09/668,297

Examiner

Audrey Y. Chang

Applicant(s)

MASHITANI ET AL.

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2872

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to appeal brief filed on July 27, 2004.
2. ☒ The allowed claim(s) is/are 1-6, and 8-13, renumbered as 1-12.
3. ☒ The drawings filed on 25 September 2000 are accepted by the Examiner.
4. ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 - a) ☒ All b) ☐ Some* c) ☐ None of the:
 1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

* Certified copies not received: _____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.
THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

5. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
 6. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
 - (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
 - 1) ☐ hereto or 2) ☐ to Paper No./Mail Date _____.
 - (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____.
- Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
7. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

1. ☒ Notice of References Cited (PTO-892)
2. ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3. ☒ Information Disclosure Statements (PTO-1449 or PTO/SB/08),
Paper No./Mail Date 8/25/04
4. ☐ Examiner's Comment Regarding Requirement for Deposit
of Biological Material
5. ☐ Notice of Informal Patent Application (PTO-152)
6. ☐ Interview Summary (PTO-413),
Paper No./Mail Date _____.
7. ☒ Examiner's Amendment/Comment
8. ☒ Examiner's Statement of Reasons for Allowance
9. ☐ Other _____.

EXAMINER'S AMENDMENT

Remark

- This Office Action is in response to applicant's appeal brief filed on July 27, 2004, which has been entered into file.
- Claims 1-6, and 8-13 remain pending in this application.

Examiner's Amendment

1. An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it MUST be submitted no later than the payment of the issue fee.

Authorization for this examiner's amendment was given in a telephone interview with Mr. Rustan J. Hill on October 13, 2004.

The application has been amended as follows:

In the claims (claims 1 and 8),

1. (currently amended) An autostereoscopic image display device comprising:

an image display means for displaying a left eye image and a right eye image in alternately forming stripe-shaped patterns upon a liquid crystal display panel;

a sensor for sensing a position of a head of a viewer;

a shading means comprising a plurality of continuous shading parts and liquid crystal shutters provided on both sides of the continuous shading part, the liquid crystal shutters turning on and off based upon the position of the head of the viewer to generate a binocular parallax effect; and

area shifting and division control means for dividing the shading means into areas in a horizontal direction and independently controlling shifting of said liquid crystal shutters in each of the areas, each

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area including a plurality of continuous shading parts, wherein the viewer can view a stereoscopic image when the head position of the viewer is out of an optimum position from the image display means.

8. (currently amended) An autostereoscopic image display device comprising:

an image display means for displaying a left eye image and a right eye image in alternately forming stripe-shaped patterns upon a liquid crystal display panel;

a sensor for sensing a position of a head of a viewer;

a shading means comprising a continuous shading part and liquid crystal shutters provided on both sides of the continuous shading part, the liquid crystal shutters turning on and off based upon the position of the head of the viewer to generate a binocular parallax effect; and

area shifting and division control means for dividing the shading means into at least two areas in a horizontal direction and independently controlling shifting of said liquid crystal shutters in each of the areas, each area including at least one continuous shading part, wherein the viewer can view a stereoscopic image when the head position of the viewer is out of an optimum position from the image display means, and

wherein apertures having aperture width are provided on the shading means for permitting a viewer to observe images formed by pixels displayed on the liquid crystal display panel,

the aperture widths are maintained at a uniform width by setting a boundary edge of divided areas of the shading means at one of the continuous shading parts.

Reasons For Allowance

2. The following is an examiner's statement of reasons for allowance: in view of the arguments provided in the appeal brief and the prior art references of the record, none has disclosed an autostereoscopic image display device comprises an area shifting and division control means for dividing

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a shading means into areas in a horizontal direction and *independently* controlling shifting of the liquid crystal shutters of the shading means in each of the areas, each area including a plurality of continuous shading parts, wherein a viewer can view stereoscopic image when the *head position* of the viewer is *out of an optimum position from the display means*.

Prior art reference, US patent issued to Isono et al (PN. 5,315,377) teaches a three dimensional image display having a barrier display liquid crystal panel that is capable of generating different numbers of pitch or variable pitch barrier to accommodate different viewing points however it does not teach means to divide the barrier panel into areas and independently controls the barrier generation in the areas to allow the viewer observes stereoscopic image when the head position is out of the optimum position from the display panel, in particularly out of the optimum distance from the display panel.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

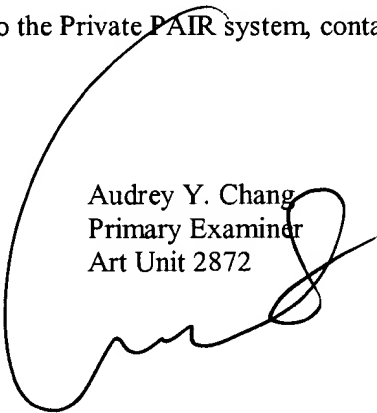
Any inquiry concerning this communication or earlier communications from the examiner should be directed to Audrey Y. Chang whose telephone number is 571-272-2309. The examiner can normally be reached on Monday-Friday (8:00-4:30), alternative Mondays off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Drew Dunn can be reached on 571-272-2312. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Audrey Y. Chang
Primary Examiner
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A. Chang, Ph.D.